

IN THE CLAIMS

1. (Previously Presented) A method of removing a Doppler change in frequency in a spread spectrum communications signal comprising the steps of:
 - receiving a spread spectrum communications signal within a communications receiver having a dedicated physical channel and common pilot channel;
 - estimating the Doppler change in frequency using the common pilot channel; and
 - removing the Doppler change in frequency within the dedicated physical channel using the estimated Doppler change in frequency.
2. (Previously Presented) A method according to Claim 1, comprising receiving the spread spectrum communications signal within a rake receiver.
3. (Original) A method according to Claim 1, wherein said spread spectrum communication signal comprises a code division multiple access (CDMA) communications signal.
4. (Previously Presented) A method according to Claim 1, wherein the step of estimating comprises the step of multiplying a channelization code into respective In-phase (I) and Quadrature (Q) channels, summing over a symbol period, and sampling to obtain respective I and Q sampled values.

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5. (Previously Presented) A method according to Claim 4, comprising phase shifting and taking an arctangent of I and Q sampled values to estimate the Doppler change in frequency.

6. (Previously Presented) A method according to Claim 5, comprising estimating sine and cosine values of the estimated Doppler change in frequency to be multiplied within the dedicated physical channel.

7. (Previously Presented) A method according to Claim 1, comprising splitting the dedicated physical channel into I and Q data channels that receive an estimated Doppler change in frequency.

8. (Previously Presented) A method according to Claim 7, comprising estimating the Doppler change in frequency within respective I and Q Doppler estimation channels.

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9. (Previously Presented) A method of removing a Doppler change in frequency in a spread spectrum communications signal comprising the steps of:

receiving a spread spectrum communications signal within a rake receiver having a dedicated physical channel and common pilot channel;

estimating the Doppler change in frequency within a pilot channel rake section using the common pilot channel; and

removing the Doppler change in frequency of the spread spectrum communications signal within a data channel rake section by multiplying the Doppler change in frequency estimated from the pilot channel rake section into the dedicated physical channel.

10. (Previously Presented) A method according to Claim 9, wherein the step of estimating comprises multiplying a channelization code into respective In-phase (I) and Quadrature (Q) channels, summing over a symbol period, and sampling to obtain respective I and Q sampled values.

11. (Previously Presented) A method according to Claim 10, comprising phase shifting and taking an arctangent of I and Q sampled values to estimate the Doppler change in frequency.

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12. (Previously Presented) A method according to Claim 11, comprising estimating sine and cosine values of the estimated Doppler change in frequency to be multiplied within the dedicated physical channel.

13. (Previously Presented) A method according to Claim 9, comprising splitting the dedicated physical channel into I and Q data channels that receive an estimated Doppler change in frequency.

14. (Previously Presented) A method according to Claim 13, comprising estimating the Doppler change in frequency within respective I and Q Doppler estimation channels.

15. (Cancelled)

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16. (Currently Amended) ~~A communications receiver according to Claim 15, A communications receiver that removes a Doppler change in frequency in a spread spectrum communications signal comprising:~~

~~a pilot channel rake section having I and Q Doppler estimation channels for estimating the Doppler change in frequency in the communications signal based on a common pilot channel; and~~

~~a data channel rake section having I and Q data channels for receiving the data in the communications signal, which has a frequency error caused by the Doppler change in frequency wherein each I and Q data channel comprises a delay circuit for receiving respective I and Q signals split from the spread spectrum communications signal at baseband and sine and cosine branches for receiving and multiplying into the sine and cosine branches the estimated Doppler change in frequency.~~

17. (Previously Presented) A communications receiver according to Claim 16, comprising an addition circuit for adding together any multiplied product received from respective sine and cosine branches.

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18. (Currently Amended) A communications receiver according to Claim 15, A communications receiver that removes a Doppler change in frequency in a spread spectrum communications signal comprising:

a pilot channel rake section having I and Q Doppler estimation channels for estimating the Doppler change in frequency in the communications signal based on a common pilot channel; and

a data channel rake section having I and Q data channels for receiving the data in the communications signal, which has a frequency error caused by the Doppler change in frequency comprising an integrator for introducing a spreading factor when canceling any Doppler error.

19. (Currently Amended) A communications receiver according to Claim 1516, wherein each I and Q Doppler estimation channel comprises a mixer for receiving the spread spectrum communications signal at baseband and a channelization code.

20. (Currently Amended) A communications receiver according to Claim 1516, wherein each I and Q Doppler estimation channel comprises an integrator and sample and delay circuit.

21. (Previously Presented) A communications receiver according to Claim 20, wherein each I and Q Doppler estimation channel comprises a phase shifter.

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22. (Previously Presented) A communications receiver according to Claim 20, wherein each I and Q Doppler estimation channel comprises a multiplier for receiving a delay signal from the respective other I or Q Doppler estimation channel.

23. (Previously Presented) The method of Claim 1, comprising using differential detection for estimating the Doppler change in frequency.

24. (Previously Presented) The method of Claim 9, comprising using differential detection for estimating the Doppler change in frequency.

25. (Currently Amended) The communications receiver of Claim 15, wherein the pilot channel rake section uses differential detection for estimating the Doppler change in frequency.